PATENT APPLICATION Attorney's Docket No.: 2831.2003-000

## N THE UNITED STATES PATENT AND TRADEMARK OFFICE

Tony W. Ho, Gene C. Kopen, William F. Righter, J. Lynn Rutkowski and Joseph Wagner

Application No.:

09/960,244

Group Art Unit: 1651

Filed:

11/14/03

September 21, 2001

Examiner:

Vera Afremova

Confirmation No.:

4326

For:

Cell Populations Which Co-Express CD49c and CD90

### CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, or is being facsimile transmitted to the United States Patent and Trademark Office on:

Dec . 23, 2003 Betsy S. Kurschner

Date Signature

Typed or printed name of person signing certificate

# TRANSMITTAL OF PREVIOUSLY FILED INFORMATION DISCLOSURE STATEMENT AND PREVIOUSLY CITED REFERENCES

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

On January 22, 2002, Applicants filed, by Certificate of Mailing, an Information Disclosure Statement and PTO Form 1449 citing references AA-AJ, AL, AM, AR-AZ, AR2-AZ2, AR3-AY3. A copy of the Information Disclosure Statement, Form 1449 and date-stamped postcard receipt for the Information Disclosure Statement filed on January 22, 2002, are enclosed.

Applicants' Attorney spoke to Examiner Afremova on November 7, 2003 regarding the absence of reference to and an initialed PTO Form 1449 for the Information Disclosure

Statement filed on January 22, 2002 in the Office Action mailed from the U.S. Patent and Trademark Office on July 24, 2003. Examiner Afremova indicated that, according to the Patent Office records, the January 22, 2002 Information Disclosure Statement and accompanying PTO Form 1449 have not been entered.

As requested by Examiner Afremova, Applicants are filing this Transmittal of Previously Cited References, a copy of the January 22, 2002 Information Disclosure Statement, accompanying PTO Form 1449, date-stamped postcard receipt and the references (AA-AJ, AL, AM, AR-AZ, AR2-AZ2, AR3-AY3) previously filed in the January 22, 2002 Information Disclosure Statement.

Although Applicants believe no fees are due in this matter, please charge any deficiencies in fees to Deposit Account No. 08-0380. One additional copy of this document is enclosed for accounting purposes.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

Mary K. Murray

Registration No.: 47,813 Telephone: (978) 341-0036 Facsimile: (978) 341-0136

Concord, MA 01742-9133

Dated:

December 22, 2003



PATENT APPLICATION DOCKET NO.: 2831.2003-000



# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Tony W. Ho, Gene C. Kopen, William F. Righter, J. Lynn Rutkowski and Joseph Wagner

Applio	cation No.:	09/960,244	Group Art Unit:	1633
Filed:		September 21, 2001	Examiner:	Not yet assigned
"Title:	·	"Cell Populations Which Co	-Express CD49c and CD90"	
»		I hereby certify that this correspondence of States Postal Service with sufficient penvelope addressed to Assistant Communication on State Date  Typed or printed name	TE OF MAILING dence is being deposited with the United postage as First Class Mail in an missioner for Patents, Washington, D.C.  Strey J. Husselmer Signature Of person signing certificate  CLOSURE STATEMENT	
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	ant Commissio	•	•	
Washi	ngton, D.C. 20	)231		•
Sir: This I	nformation Disc	closure Statement is submitted	i:	
[]	under 37 CFR (First/Second submis	1.129(a), or sion after Final Rejection)		
[ X ]	stage in an internation	1.97(b), or ne following time periods: three months of fi mal application; or before the mailing date of or Continued Examination).		
[ ]	[ ] a State	1.97(c) together with either: ement under 37 CFR 1.97(e), a 0.00 fee under 37 CFR 1.17(p)		
		97(b) time period, but before final action or	-	
Гì	under 37 CFR	1.97(d) together with:		

[ ] under 37 CFR 1.97(i):
Applicant requests that the IDS and cited reference(s) be placed in the application filewrapper.

a Statement under 37 CFR 1.97(e), as checked below, and

(Filed after final action or notice of allowance, whichever occurs first, but on or before payment of the issue fee)

a \$180.00 fee under 37 CFR 1.17(p), or

(Filed after payment of issue fee)

[ ]

[ ]

[ ]



Staten	nent Un	der 37 CFR 1.97(e)				
[ ]	Each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement; or					
[ ]	No item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned, after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of this Information Disclosure Statement.					
Staten	ent Un	der 37 CFR 1.704(d) (Patent Term Adjustment) Applies to original applications (other than design) filed on or after May 29, 2000				
[ ]	Each item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in § 1.56(c) more than thirty days prior to the filing of the Information Disclosure Statement.					
[ X ]	Enclos	ed herewith is form PTO-1449:				
	[X]	Copies of the cited references (AA-AJ, AL-AM, AR-AZ, AR2-AZ2 and AR3-AY3) are enclosed.				
	[ ]	Copies of cited references are enclosed except those entered in prior application, U.S. Application No. [ ], to which priority under 35 U.S.C. 120 is claimed. [The earlier application contains copies of the cited references.]				
	[ ]	The listed references were cited in the enclosed International Search Report in a counterpart foreign application.				
	[ ]	The "concise explanation" requirement (non-English references) for reference(s) [ under 37 CFR 1.98(a)(3) is satisfied by:				
		[ ] the explanation provided on the attached sheet.				
		[ ] the explanation provided in the Specification.				

submission of the enclosed International Search Report.

the enclosed English language abstract.

[ ]	Appli	cant requests that the following n	on-published pending appli	cations be considered:
Examiner Initials	's			
	_	U.S. Patent Application No. [	], by [inventor(s)], filed [	], Docket No.: [ ]
	_	U.S. Patent Application No. [	], by [inventor(s)], filed [	], Docket No.: [ ]
	-	U.S. Patent Application No. [	], by [inventor(s)], filed [	], Docket No.: [ ]
		Examiner	Date	<u>-</u>
	[ ]	A copy of each above-cited app	lication, including the curre	nt claims, is enclosed.
	[ ]	A copy of each above-cited app those entered in prior applicatio 35 U.S.C. 120 is claimed.	lication, including the current, U.S. Application No. [	nt claims, is enclosed, except ], to which priority under
The E	xamine nces we	r is requested to return a copy of tree considered with the next office	the above list of pending appectormunication.	olications indicating which
It is re	quested	I that the information disclosed he	erein be made of record in th	is application.
Metho	od of pa	yment:	`.	
[ ]	A checaccom	ck for the fee noted above is enclospanying Reply. A copy of this St	osed, or the fee has been included attement is enclosed.	luded in the check with the
[ ]	Please enclos	charge Deposit Account 08-0380 ed.	in the amount of \$[ ].	A copy of this Statement is
[X]	Please	charge any deficiency in fees and	I credit any overpayment to	Deposit Account 08-0380.
		Re	espectfully submitted,	
		H	AMILTON, BROOK, SMIT	H & REYNOLDS, P.C.
		•	Mary K. Murray Registration No.: 47,813 Telephone: (978) 341-0036 Facsimile: (978) 341-0136	nuay

Concord, MA 01742-9133 Dated:

January 22, 2002

PTO-1449 REPRODUCED

INFORMATION DISCLOSURE C IN AN APPLICATION

January 18, 2002

(Use several sheets if necessary)

ATTORNEY DOCKET NO. DEC 2 4 2003 2831.2003-000

APPLICATION NO. 09/960,244

APPLICANT

Tony W. Ho, et al.

FILING DATE Sept. 21, 2001

GROUP 1633

v.s.	PATENT	DOCUMENTS

1								
	AJ	6,184,035	Feb 6, 2001	Csete, M. et al.	435	377		
	AI	5,962,323	Oct. 5, 1999	Greenburger, J.S. et al.	435	384		
	АН	5,942,225	Aug. 24, 1999	Bruder, S.P. et al.	424	93.7	,	
	AG	5,811,094	Sept. 22, 1998	Caplan, A.I. et al.	424	93.7		
ļ	AF	5,736,396	Apr. 7, 1998	Bruder, S.P. et al.	435	366		
<b></b>	AE	5,728,581	Mar 17, 1998	Schwartz, R.M. et al.	435	385		
<u> </u>	AD	5,591,625	Jan. 7, 1997	Gerson, S.L. et al.	435	240.2		
	AC	5,486,359	Jan. 23, 1996	Caplan, A.I. et al.	424	93.7		
	AB	5,197,985	Mar. 30, 1993	Caplan, A.I. et al.	623	16		
<b></b>	AA	5,061,620	Oct. 29, 1991	Tsukamoto, A. et al.	435	7.21	,	
EXAM- INER INI- TIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE IF APPROPRIATE	
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### FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSI YES	ATION NO
 AL	WO 00/69448	23 Nov 2000	PCT				x
AM .	WO 01/78753	25 Oct 2001	PCT				x

# OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

- Akiyomo, Y. et al., "Functional Repair of Demyelinated Spinal Cord Axons in the Adult Rat by Transplantation of Clonal Neural Stem Cells Derived From Adult Human Brain," Society for Neuroscience Abstracts 25: Abstract 86.9 (1999).
- Azizi, S. A., et al., "Engraftment and migration of human bone marrow stromal cells implanted in the brains of albino rats-similarities to astrocyte grafts," Proc. Natl. Acad. Sci. USA 95: 3908-3913 (1998).
- Azizi, S. A., "Exploiting Non-neural Cells to Rebuild the Nervous System: From Bone Marrow to Brain," The Neuroscientist 6(5): 353-361 (2000).
- Bianco, P., et al., "Bone Marrow Stromal Stem Cells: Nature, Biology, ΑU and Potential Applications," Stem Cells 19: 180-192 (2001).
- Chopp, M., et al., "Spinal cord injury in rat: treatment with bone ΔV marrow stromal cell transplantation," NeuroReport 11(13): 3001-3005 (2000).

EXAMINER

DATE CONSIDERED

Sheet 2 of 3 PTO-1449 REPRODUCED ATTORNEY DOC APPLICATION NO. 2831.29.02 09/960,244 INFORMATION DISCLOST IN AN APPLICAT APPLICANT Tony W. Ho et al. January 18, 2002 FILING DATE GROUP (Use several sheets if necessary) Sept. 21, 2001 1633 U.S. PATENT DOCUMENTS EXAM-SUB-FILING DATE INER DOCUMENT NUMBER DATE NAME CLASS CLASS INI-IF APPROPRIATE TTAI. FOREIGN PATENT DOCUMENTS TRANSLATION SUB-DOCUMENT NUMBER DATE COUNTRY CLASS CLASS YES NO OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) Colter, D. C. et al., "Rapid expansion of recycling stem cells in cultures of plastic-adherent cells from human bone marrow," Proc. Natl. Acad. Sci. USA 97(7): 3213-3218 (2000). Coyle, A.J., et al., "Human Mesenchymal Stomal Cells Can Differentiate AX into Oligodendrocyte Lineage in Transplantation Experiments with MD Rats, "Soc. for Neurosci. Abs. 26: Abstract 415.11 (2000). AY Eglitis, M. A., et al., "Hematopoietic cells differentiate into both microglia and macroglia in the brains of adult mice," Proc. Natl. Acad. Sci. USA 94: 4080-4085 (1997). AZFerrari, G., et al., "Muscle Regeneration by Bone Marrow-Derived Myogenic Progenitors," Science 279: 1528-1530 (1998). AR2 Himes, B. T. et al., "Grafting human bone marrow stromal cells into injured spinal cord of adult rats," Society for Neuroscience Abstracts 25: Abstract 86.11 (1999). Kopen, G. C., et al., "Marrow stromal cells migrate throughout AS2 forebrain and cerebellum, and they differentiate into astrocytes after injection into neonatal mouse brains," Proc. Natl. Acad. Sci. USA 96: 10711-10716 (1999). Li, J., et al., "Nontransformed colony-derived stromal cell lines from normal human marrows. II. Phenotypic characterization and differentiation pathway," Experimental Hematology 23: 133-141 (1995). Liechty, K. W., et al., "Human mesenchymal stem cells engraft and AU2 demonstrate site-specific differentiation after in utero transplantation in sheep," Nature Medicine 6(11): 1282-1286 (2000). Majumdar, M .K., et al., "Phenotypic and Functional Comparison of Cultures of Marrow-Derived Mesenchymal Stem Cells (MSCs) and Stromal Cells," J. Cell. Phys. 176: 57-66 (1998).

EXAMINER

AW2

irradiated mice," Proc. Natl. Acad. Sci. USA 92: 4857-4861 (1995).

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		DEC 2 4 2002 C			Sheet 3 c	of 3
PTO-144		CO	2821.2003-000	APPLICAT	TION NO.	
	INFO	RMATION DASCLOSUS CITATION IN AN APPLICATION	APPLICANT Tony W. Ho, et al.			
	(Use	January 18, 2002 several sheets if necessary)	FILING DATE Sept. 21, 2001	GROUP 1633		
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·		,				
		OTHER DOCUMENTS (Including A	uthor, Title, Date, Pertinent	: Pages,	Etc.)	
	AX2	Phinney, D. G., et al., "I Osteogenic Potential of Hu 75: 424-436 (1999).				
	AY2	Phinney, D. G., et al., "I Marrow of Commonly Used St Growth, and Differentiation	trains of Inbred Mice: V	ariatic	ons in Y	Yield,
	AZ2	Pittenger, M. F., et al., Mesenchymal Stem Cells," S			ılt Huma	an
	AR3	Prockop, D. J., "Marrow St Nonhematopoietic Tissues,"				·
	AS3	Roisen, F. J., et al., "Mu Neuroepithelial Stem Cells Abstract 312.7 (2000).				s 26:
	AT3	Sanchez-Ramos, J., et al., Differentiate into Neural 247-256 (2000).				ogy 164:
	AU3	Sanchez-Ramos, J., et al., adult rat brain migrate, coneuronal markers," Neurold	organize in architectonio	c ratte	rns and	d express
	AV3	Schwartz, E. J., et al., "Transduced to Produce L-DO Disease," Human Gene Thera	PA: Engraftment in a Rat	t Model		kinson
	EWA	Taupin, P., et al., "FGF-2 Requires CCg, a Novel Auto (2000).				
	AX3	Woodbury, D., et al., "Adu Differentiate Into Neurons				
	AY3	Woodbury, D., et al., "Adu Differentiate Into Neurons Abstract 312.9 (2000).				
EXAMIN	IER		DATE CONSIDERED	<u> </u>	<del>(************************************</del>	



Date received by the PTO:



Initials: NSP/M	KM/bsk Docket No.	: 2831.2003-000	Date: January 22,	, 2002
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[ ] under 37 CFR 1.129(a), or (First/Second submission after Final Rejection)
[ ] under 37 CFR 1.97(b), or (Within any one of the following time periods: three months of filing national application (other than a CPA) or date of entry of the national in an international application; or before the mailing date of a first office action on the merits in a non-provisional application, including a Cl a Request for Continued Examination).
[X] under 37 CFR 1.97(c) together with either:

[ ] a Statement under 37 CFR 1.97(e), as checked below, or
[ X] a \$180.00 fee under 37 CFR 1.17(p), or (After the 37 CFR 1.97(b) time period, but before final action or notice of allowance, whichever occurs first)

[ ] under 37 CFR 1.97(d) together with:

[ ] a Statement under 37 CFR 1.97(e), as checked below, and
[ ] a Statement under 37 CFR 1.17(p), or (Filed after final action or notice of allowance, whichever occurs first, but on or before payment of the issue fee)

[ ] under 37 CFR 1.97(i):

Applicant requests that the IDS and cited reference(s) be placed in the application filewrapper.

(Filed after payment of issue fee)

01/05/2004 CCHAU1 00000065 09960244

02 FC:1806



# Statement Under 37 CFR 1.97(e)

_		TILOTIC CIT		<u>01101,97(0)</u>
[	-	commu	nication	formation contained in this Information Disclosure Statement was first cited in any from a foreign patent office in a counterpart foreign application not more than it to the filing of this Information Disclosure Statement; or
[	-	communication the in	nication lge of tl Iformati	rmation contained in this Information Disclosure Statement was cited in a from a foreign patent office in a counterpart foreign application, and, to the ne undersigned, after making reasonable inquiry, no item of information contained on disclosure statement was known to any individual designated in 37 CFR 1.56(c) months prior to the filing of this Information Disclosure Statement.
<u>S1</u>	tatei	ment Un	der 37 (	CFR 1.704(d) (Patent Term Adjustment) Applies to original applications (other than design) filed on or after May 29, 2000
[	]	comm was no	unication traceives	information contained in the Information Disclosure Statement was cited in a on from a foreign patent office in a counterpart application and this communication wed by any individual designated in § 1.56(c) more than thirty days prior to the aformation Disclosure Statement.
<b>(</b> )	<b>(</b> ]	Enclos	sed here	ewith is form PTO-1449:
	-,	[X]		s of the cited references are enclosed.
		[A]		
			[]	Since this application was filed after June 30, 2003, copies of issued U.S. patents and published U.S. applications are not required and are not being provided.
		[]	Applic	s of the cited references are enclosed except those entered in prior application, U.S. cation No. [ ], to which priority under 35 U.S.C. 120 is claimed. [The earlier ation contains copies of the cited references.]
		[ ]	The list	sted references were cited in the enclosed International Search Report in a erpart foreign application.
		[ ]	The "cunder	concise explanation" requirement (non-English references) for reference(s) [ 37 CFR 1.98(a)(3) is satisfied by:
		,	[]	the explanation provided on the attached sheet.
			[ ]	the explanation provided in the Specification.
			[ ]	submission of the enclosed International Search Report.
			[ ]	submission of the enclosed English-language version of a foreign Search Report and/or foreign Office Action.
			[ ]	the enclosed English language abstract.

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[ ]	Applio	cant requests that the following n	on-published pending applic	cations be considered:
Examiner's Initials				
		U.S. Patent Application No. [	], by [inventor(s)], filed [	], Docket No.: [ ]
		U.S. Patent Application No. [	], by [inventor(s)], filed [	], Docket No.: [ ]
		U.S. Patent Application No. [	], by [inventor(s)], filed [	], Docket No.: [ ]
		Examiner	Date	_
	[ ]	A copy of each above-cited app	olication, including the curre	nt claims, is enclosed.
	[ ]	A copy of each above-cited app those entered in prior application 35 U.S.C. 120 is claimed.	olication, including the current on, U.S. Application No. [	nt claims, is enclosed, except ], to which priority under
		r is requested to return a copy of re considered with the next offic		olications indicating which
It is re	quested	that the information disclosed h	erein be made of record in the	nis application.
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[ ]	Please enclos	charge Deposit Account 08-038 ed.	0 in the amount of \$[ ]	. A copy of this Statement is
[X]	Please	charge any deficiency in fees an	d credit any overpayment to	Deposit Account 08-0380.
		R	Respectfully submitted,	
		H. B.	Mary K. Murray Registration No.: 47,813 Telephone: (978) 341-0136 Facsimile: (978) 341-0136	TH & REYNOLDS, P.C.

Concord, MA 01742-9133
Dated: December 27 2003

			Sheet 1 of	
PTO-1449 REPRODUCED	ATTORNEY DOCKET NO. 2831.2003-000	APPLICATION NO. 09/960,244		
SUPPLEMENTAL INFORMATION DISCLOSURE CITATION IN AN APPLICATION	APPLICANT Tony W. Ho, et al.			
November 6, 2003  (St. several sheets if necessary)	FILING DATE September 21, 2001	CONFIRMATION NO. 4326	GROUP 1651	
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No.		U.S. P	ATENT DOCUMENTS	
EXAM- INER INI- TIAL	REF. NO.	DOCUMENT NUMBER	ISSUE DATE / PUBLICATION DATE	NAME
	AA3			
	AB3			
	AC3			
	AD3			
	AE3			
	AF3	2001/0034061 A1	October 25, 2001	Csete, et al.
	AG3			
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